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AUTHOR Pierce, Alan J.
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ABSTRACT

Innovation should not be initiated simply for the sake of change but to make teaching more effective and improve students' learning. Changes in a teacher's method of instruction should be made to meet needs of the students, but the teacher is also responsible for trying different teaching techniques in the classroom that increase his/her enjoyment of teaching. Some factors that influence a teachers' willingness to use new ideas are characteristics of the innovation that affect the adoption decision, basic stages of the adoption process, characteristics of the adopter that affect the adoption decison, and influence of superior-subordinate roles on the adoption decison. The process of acceptance of innovation includes teacher awareness, evaluation for possible use, trial, evaluation of effectiveness, and adoption. Diffusion researchers have shown that if the adoption rate of an innovation is plotted over time, a bell-shaped curve results. Slow adoption rate by educators is attributed to lack of profit and teacher risk of failure. Personal attributes or characteristics that affect a person's willingness to change include age (younger people welcome change) and education (the greater the education the more likely the person is to be innovative). (YLB)

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AMERICAN VOCATIONAL ASSOCIATION

1981 CONVENTION

ATLANTA, GEORGIA

INDUSTRIAL ARTS DIVISION PRESENTATION

SHOULD YOU BE PUTTING INNOVATIONS INTO USE IN YOUR INDUSTRIAL ARTS FACILITIES

BY

DR. ALAN J. PIERCE

DECEMBER 6, 1981

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The innovative decision, is it simple or complex, important or unimportant, a point in time, or a threshold to be stepped over? If you adopt educational innovation, are you changed by your act of adoption? Do educators overdo innovation? Can innovation be a part of the cause or part of the cure of burnout? I hope to raise more questions than I will answer.

The button that you have received states, "The Innovative Decision-I don't do anything I don't like-Industrial Arts". The button that I am wearing, as many of you have noticed, is the mirror image of yours. Since your button reflects my beliefs, am I indicating that I feel your beliefs are a reversal of my own. Obviously, your position on the subject of innovation can be further up or down the innovation continuum than my own. I feel that in the end your own thoughts or your own mirrored images of your beliefs will determine your level of innovativeness.

The innovative decision, is it a way of avoiding or creating the stress that predisposes burnout? Francis Cocha in an article in the fall 1981 issue of, Kappa Delta Pi Record indicated that to prevent stress and burnout teachers must keep up with trends in their educational field. He indicates that teachers must improve their teaching skills and the school curriculum. The teachers in a school need to discuss innovative ideas with their peers and their supervisors. "Frequently, teachers feel isolated, lose their enthusiasm, and stagnate in their individual classrooms." The four stages of burnout, according to Edelvich and Brodsky, as reported by Paine in the November-December 1981 issue The Journal of the American Vocational Association are enthusiasm, stagnation, frustration, apathy. Paine in his article added a possible fifth stage of burnout which he called disability. I hope my audience

is still in the enthusiasm stage. I feel that my talk today can still be meaningful for those of you that might feel that you have reached a point of stagnation. I might hit that spark that could assist you if you have reached a level of frustration. If my audience, or a good part thereof, has reached the point of apathy my best suggestion would be that we adjourn to the closest tavern and see if we can't drown our anxieties together. I feel reasonably certain that no one here today has passed out of the enthusiasm stage much less reached the point of apathy. A positive effective change could be a lessening of the stresses that can lead to burnout. Paine however, warns in the same article that you must be careful because even effective change will be stressful over the short haul and ineffective change is so stressful that it can bring you toward burnout.

We have all heard the voices that resound in our communities, educational institutions, and government that call for a back to basics in education. These people talk about an overdose of innovation. I am asking you to make the innovative decision and I am willing to inform you that many people feel that the innovative decision has caused an educational landside toward ineffective learning. In a March 1981 article in the American Teacher, Albert Shanker states his fear that we are on the threshold of innovation overdose. He indicates that teachers are told that they must try new methods each year. He feels that teachers are being informed that if they, "Merely repeat last year's lessons they've lost life and vitality they're professionally dead". As Al Shanker points out there is certainly room for last year's achievements in this year's program. You must always seek ways of making your teaching more effective. Effective change does not have to be all encompassing,

it can be any change that improves your effectiveness in the classroom. At this point you should realize that an innovation in your shop would not have to be individualized prescribed instruction. The change could be individualized prescribed instruction but it could also be a new shop personnel schedule or a new method to teach basic printing processes. My working definition for educational innovation in this presentation would be the use of a new product, process or idea in an educational setting that contains a deliberate specific change of the present way of doing things. This is a change in the way that you are doing things in your classroom, not the way the teacher down the hall, in another school, in another state, or in another country is doing things. Change can be very complex, the changes that you make can be simple but they will always be important to you. I am asking you to take one step in time that will eventually bring you to the threshold of the educational innovation. The idea is to be an innovator today in your eyes and an innovator tomorrow in the eyes of our educational community.

Should you be putting innovations into use in your industrial arts facilities? A parallel question would be should industry be putting innovations into use in their offices and factories? Most industries that are not innovative are destroyed or absorbed by their competition, over time. Just as industry has adopted new designs, materials, and methods of fabrication, the educators of today have developed new techniques of teaching that are in the process of being adopted by teachers. What is appropriate for one manufacturer, in our competitive society, might not meet the needs, image, or production scale of another company that produces a similar product. Industrial techniques must be in line with the

company's market demands. Your method of instruction must meet the needs of your students. What meets your needs and is in line with your personality might not meet the needs of many of your colleagues. My central belief is that if all outside forces could be removed, your level of innovativeness would be determined by your mental and physical temperment and physical attributes as well as your likes and dislikes.

Before we can look at the variables that might make you more innovative than the person sitting next to you-we have to ask:

1. Are teachers capable of initiating innovative methods in their school or classroom?
2. Are there limitations on their ability to innovate?

Henry Brickell in his study, Organizing New York State for Educational Change (1961) indicated that teacher innovation is limited to his work in the classroom. With administration willingness, a teacher can change classroom procedures and reorganize existing curriculum content. If a teacher perceives that his administrator is against curriculum or teaching method re-structuring, teacher innovativeness would probably be stifled. In my own study I found a statistically significant relationship between teacher innovativeness and supervisor supportiveness.

Decker Walker in his paper, "Toward Comprehension of Curriculum Realities", (1976) stated that teachers clearly have the final and loudest say about the adoption of innovations. The teacher's importance in the decision process is determined by his front lines position. If the innovation is found cumberson, the teacher's behavior could easily undermine its effectiveness.

Carolyn Stern and Evan Keisler's article in 1977 entitled, "Teacher Attitudes and Attitude Change: A Research Review", were just as emphatic. "No matter how sound the innovation's theoretical

base, no matter how well engineered nor how richly supported...an innovation imposed authoritatively on the teacher will not succeed."

As you can see even if armed with nothing more than your own initiative you can try new ideas in your classroom. In fact, Everett Rogers in his 1962 book, Diffusion of Innovations, points out that, "It matters little whether or not an innovaton has a greater degree of advantage over the idea it is replacing". What does matter is whether you perceive a relative advantage to the new innovation. What I am asking you to do is to try different teaching techniques in your classroom that might improve learning or increase your enjoyment of teaching. If the method becomes cumbersome or doesn't give the results you desired then alter or drop the method. Jim McDermott was chairman of industrial arts at CCNY before his retirement and he often spoke of the two teachers that were starting their tenth year of teaching. One teacher was bored and ineffective, today we might say burned out, because in actuality he only taught his first year nine times. The other teacher was special because he refined his methods and changed his approach so that he had nine years of teaching experience.

Researchers have identified the following elements of the diffusion puzzle that should help you understand the factors that influence your own willingness to use new ideas in your classroom.

1. Characteristics of the innovation that affects the adoption decision.
2. The basic stages of the adoption process.
3. Characteristics of the adopter that affects the adoption decision.
4. The influence of superior-subordinate roles on the adoption decision.

Just as no two people are exactly the same, innovations have their special characteristics that will affect your potential for

adoption. In order to save yourself time and energy it will be helpful if you ask and then answer the following questions pertaining to the innovation that you have under consideration.

1. Is it a superior method to the method that it is designed to replace? This is very subjective on your part and you might answer very differently than the people seated next to you.

2. Is it compatable with your way of organizing things? The more foreign it is the harder it will be for you to use it.

3. How complex is the new innovation? The more difficult it is to understand and implement the less likely its acceptance.

4. How easily can it be tried on a limited basis? The larger the test commitment, the larger the size of failure if it doesn't work out.

The acceptance of innovation is actually a process which begins with your awareness that the innovation exists. Interest in the innovation must be sparked so that you will gain enough information to evaluate the innovation for possible use in your classroom. Your next step is to place the idea on trial in your classroom. Your method of evaluation as to the effectiveness of the idea might be your own simple observation or a statistical test. The final step in the process would be your adoption of the innovation. This does not mean that you throw out all other methods that have been ongoing in your program, but rather that this new idea or method has found a place for its use in your program. You might be considered by others as an innovator or even a laggard depending on the number of your colleagues that have already accepted the idea. What is important is that in your own mirrored image of yourself, you are an innovator. You teach using the methods that, in your opinion, best meets the needs of your students. The innovative decision has become a decision to

try anything that might increase your effectiveness as a teacher.

Your position on an adoption continuum would probably be of interest to you. If I adopt a new idea today, how many of my colleagues will have adopted this same idea yesterday and how many will adopt the idea tomorrow? Researchers have acknowledged the fact that there is a wide range in the rate of adoption of educational ideas. Early educational diffusion research was done by Paul Mort and his students at Columbia University. They concluded in 1946 that the average diffusion of a new innovation took fifty years. Mort indicated that if one considered the time needed for the trial and error development of the idea, a hundred years would pass from the point where a need was recognized to the point where the developed innovation for that need diffused. We live in an accelerating age today. At times new ideas become antiquated before or just after they reach production. Richard Carlson in his 1965 book, Adoption of Educational Innovations found 20 to 75 percent adoptions where Mort's timetable would have expected two percent.

Diffusion researchers have shown that if you plot the adoption rate of an innovation over time, you will get a curve that is normally distributed or bell shaped. Rogers adoption curve (1962, p. 162) shows the very slow beginning of the innovation stage through the quickening pace of the early majority stage to the final slackening off of the laggard stage. In order to fit any innovation into this curve, it is necessary to assume that given time this innovation would be fully adopted. Hence, the present point of adoption can be categorized as a spot on a continuum that stretches from innovator to laggard. Following this assumption the nine innovations of my own study were

positioned on Rogers adoption curve. My study measured New York State teacher awareness and use of innovative teaching practices. These vocational teachers placed the nine innovations into the following position on the adoption curve.

1. Innovation Stage (2.5 percent)
    a. none
2. Early Adoption Stage (13.5 percent)
    a. Television Instruction-present level of adoption (8.04 percent)
3. Early Majority Stage (next 34 percent)
    a. Programmed Instruction-present level of adoption (17.53 percent)
    b. Student Tutoring-present level of adoption (29.79 percent)
    c. Simulation or Games-present level of adoption (31.25 percent)
    d. Independent Study-present level of adoption (36.01 percent)
    e. Individualized Prescribed Instruction-present level of adoption (38.07 percent)
4. Late Majority Stage (next 34 percent)
    a. Multi-media Instruction-present level of adoption (57.68 percent)
    b. Behavioral Objectives-present level of adoption (60.97 percent)
    c. Instructional Aides-present level of adoption (63.18 percent)
5. Laggards (last 16 percent)
    a. None

All of the innovations in my study had reached or surpassed the early adoption stage. Three innovations had passed the fifty percent point of adoption and, therefore, were in the late majority category. None of the innovations of this study were in the last 16 percent laggard category.

It has been said that an innovation moves through industry at the speed of the odor of a skunk, while through a school or school system at the relative speed of a snail. Why are educators slow to test and accept new ideas? Gene Hall in his article, "A Framework for Analyzing Innovation Adoption" (1975) stated that educators were slow to adopt new ideas because of a lack of any possible profit motive. This lack of profit is further coupled with a risk that the teacher might fail if the innovation doesn't succeed. He points out that teachers salaries are based on the number of years of teaching experience and the educational attainment they have achieved. I had earlier indicated that Al Shanker's position relative to this subject was that money goes to those who propose unique solutions. "There are few extrinsic rewards for educators who wish to work with the best existing practices or to modify credible existing programs." Teacher initiated innovation as a means of bettering their own teaching skills will probably not bring the money that Al Shanker was talking about. Trying new things in their classroom will not bring the risk of failure that Hall spoke of. What you have to gain by trying new things in your classroom is more effective student learning.

You might be asking yourself, at this time, do I want to try new ideas in my classroom? I don't propose a quandry about whether or not you should try new methods in your classroom. I want you to not seek change but to seek excellence in teaching achieved through refinement and improvement of your teaching methods. Robert E. Bills in a 1981 Kappa Delta Pi Publication, "Self-Concept and Schooling" precisely stated the problem that you must confront if you are to bring change to your classroom.

"Changes in our beliefs come slowly. What we will believe tomorrow is very likely to be what we believe yesterday. There is a principle involved here which says that what we already believe makes it difficult for us to accept newer beliefs that appear to be contradictory to the ones we already hold." I know that my audience believes in excellence through education. The theme of our convention is reaching for excellence through vocational education, this is what we believe today. Any change that we make to help bring life to our beliefs is not contradictory but exemplory.

How do the characteristics or personal attributes of a person affect his or her willingness to change. Morrish in his 1976 book, Aspects of Education Change indicated that younger people welcome change because it lessens boredom and tedium. In my own study, "A Survey of Vocational Teacher Awareness and Use of Innovative Teaching Practices in the State of New York", I found that newer teachers tended to be more aware of newer innovations that would have been studied in college method courses. As their years of teaching increased their knowledge of these innovations decreased. For example, teachers in the 11 to 15 years of service category were most likely to be using student tutoring and simulation of industrial setting techniques. Teachers in the 1 to 5 year category of service were most likely to be using behavioral objectives.

Researchers have also found a correlation between education and innovativeness. The greater your education the more likely you are to be innovative. Rogers and Morrish both concluded that the educational attainment of individuals was related to their speed of adoption. Many diffusion studies show a lack of

significance between education and level of innovativeness. I found a very significant relationship between awareness of innovations and educational attainment but only a small significant relationship between the use of student tutoring and educational preparation.

My main goal is to encourage you to try new methods in your classroom. In simple terms, I believe that anything that you don't currently use in your shop can be considered new for you and for you an innovative approach. I want the desire to try new ideas to come from you rather than be pressed on you from above. Robert Chine and Kenneth Beene's article, "General Strategies for Effecting Change in Human Systems" (1962, p. 52) discussed the coercive strategy whereby one gets the compliance of those with less power to the desires, directions, and leadership of those with more power. In my own study I found teachers were more inclined to be using innovations when they believed their supervisors supported change. Teachers were less likely to be using innovations in their classrooms if they believed that their supervisors were less innovative than they were.

I want to leave you with the thought that you should seek change, not for change's sake but to improve your students' learning and enhance your enjoyment of teaching. If you can be objective and examine that which exists in your classroom today, I believe you will be able to reflect and then refine your teaching process and, thereby, control your tomorrow.

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